

AMENDMENTS TO THE CLAIMS

1-4. (Canceled).

5. (Currently amended) A method of operating a falling film plasma reactor comprising the step of flowing a liquid dielectric over a surface of a first electrode ~~The method of claim 1, further comprising the following steps, where said~~ wherein a particulate or particulate mixture enters the Falling Film Plasma Reactor, flows into the annular region comprising the plasma, the dielectric or conductive liquids, any solid surfaces of the reactor, and any gas or gas mixture, and contacts simultaneously or in sequence the plasma, the liquids, any solid surfaces of the reactor, and any gas or gas mixture; whereupon components of said particulate or particulate mixture react with components of the plasma, the liquids, and any solid surfaces of the reactor; whereby the components of said particulate or particulate mixture are modified and subjected to further contact and processes comprising the plasma, the liquids, any solid surfaces of the reactor, and any gas or gas mixture; where the plasma, the liquids, any solid surfaces of the reactor, any gas or gas mixture, and said particulate or particulate mixture are acted upon by secondary processes comprising changes in flow, composition, reactivity, temperature, pressure, contact duration, and contact sequence; whereupon results comprising decomposition, formation, combination, separation, recovery, circulation, and exhaust are achieved through multiple processes.

6. (Currently amended) A method of operating a falling film plasma reactor comprising the step of flowing a liquid dielectric over a surface of a first electrode ~~The method of claim 1, further comprising the following steps, where said~~ wherein a liquid or liquid mixture enters the Falling Film Plasma Reactor, flows into the annular region comprising the plasma, the dielectric or conductive liquids, any solid surfaces of the reactor, and any gas or gas mixture, and contacts simultaneously or in sequence the plasma, the liquids, any solid surfaces of the reactor, and any gas or gas mixture; whereupon components of said liquid or liquid mixture react with components of the plasma, the

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liquids, and any solid surfaces of the reactor; whereby the components of said liquid or liquid mixture are modified and subjected to further contact and processes comprising the plasma, the liquids, any solid surfaces of the reactor, and any gas or gas mixture; where the plasma, the liquids, any solid surfaces of the reactor, any gas or gas mixture, and said liquid or liquid mixture are acted upon by secondary processes comprising changes in flow, composition, reactivity, temperature, pressure, contact duration, and contact sequence; whereupon results comprising decomposition, formation, combination, separation, recovery, circulation, and exhaust are achieved through multiple processes.

7-8. (canceled)

9. (new) A method of operating a falling film plasma reactor comprising the flowing of a first liquid dielectric over a first surface of a first electrode, forming a first annular region that comprises a first plasma, causing a first reactant to flow into said first annular region, causing a second reactant to flow into said annular region, wherein said first reactant is in said first dielectric liquid, and reacting said first reactant and said second reactant in said annular region.

10. (new) The method of Claim 9, wherein said first reactant comprises at least one member selected from the group comprising a gas, a gas mixture, a particulate, a particulate mixture, a liquid, and a liquid mixture.

11. (new) The method of Claim 9, wherein said second reactant comprises at least one member selected from the group comprising a gas, a gas mixture, a particulate, a particulate mixture, a liquid, and a liquid mixture.

12. (new) The method of Claim 9, wherein said second reactant comprises a wall of said reactor.

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13. (new) The method of Claim 9, further comprising a third reactant which is generated by an action of said plasma on at least one member selected from the group comprising said first reactant and said second reactant.

14. (new) The method of claim 9, further comprising the flowing of a second liquid dielectric over a second surface of a second electrode.

15. (new) The method of Claim 14, wherein said first reactant comprises at least one member selected from the group comprising a gas, a gas mixture, a particulate, a particulate mixture, a liquid, and a liquid mixture.

16. (new) The method of Claim 14, wherein said second reactant comprises at least one member selected from the group comprising a gas, a gas mixture, a particulate, a particulate mixture, a liquid, and a liquid mixture, and wherein said second reactant is in said second dielectric liquid.

17. (new) The method of claim 9, further comprising the flowing of a second liquid dielectric over said first surface of said first electrode.

18. (new) The method of Claim 9, further comprising a third reactant which is generated by an action of said plasma on at least one member selected from the group comprising said first reactant and said second reactant.

19. (new) The method of Claim 9, further comprising a secondary process that comprises a change in a least one parameter selected from the group comprising flow, composition, reactivity, temperature, pressure, contact duration, contact sequence, and combinations thereof.

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20. (new) The method of Claim 9, wherein said reacting comprises at least one member selected from the group comprising decomposition, formation, combination, separation, recovery, circulation, exhaust, and combinations thereof.